

Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date
1	Networks-1: Network solution methods: nodal and mesh analysis, Wye-Delta transformation. Network theorems: superposition, Thevenin and Norton's, maximum power transfer. Steady state sinusoidal analysis using phasors.	17	25	45 min	Activated
2	Networks-2: Frequency domain analysis of RLC circuits. Time domain analysis of simple linear circuits. Solution of network equations using Laplace transform. Linear 2-port network parameters: driving point and transfer functions.	17	25	45 min	
3	Control Systems-1: Basic control system components, feedback principle, transfer function, block diagram representation, signal flow graph. Transient and steady-state analysis of LTI systems. Routh-Hurwitz; Root-locus plots.	17	25	45 min	
4	Control Systems-2: Frequency response, Nyquist stability criteria and Bode plot. Lag, lead and lag-lead compensation, PID controllers. State variable model and solution of state equation of LTI systems.	17	25	45 min	
5	Electronic Devices-1: Energy bands in intrinsic and extrinsic silicon, Carrier transport: diffusion current, drift current, mobility and resistivity. Generation and recombination of carriers. Poisson and continuity equations. P-N junction, Zener diode.	17	25	45 min	
6	Electronic Devices-2: BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell. Integrated circuit fabrication process: oxidation, diffusion, ion implantation, photolithography and twin-tub CMOS process.	17	25	45 min	
7	Analog Circuits-1: Small signal equivalent circuits of diodes. Simple diode circuits: clipping, clamping and rectifiers. Biasing, bias stability of BJTs and MOSFETs.	17	25	45 min	
8	Analog Circuits-2: Small signal equivalent circuits of BJTs and MOSFETs, single-stage BJT and MOSFET amplifiers, mid-frequency small signal analysis. Frequency response of BJT and MOSFET amplifiers. Multi-stage, differential, feedback and power amplifiers.	17	25	45 min	
9	Engineering mathematics-1: Linear Algebra, Calculus, Vector Analysis, Probability and Statistics.	17	25	45 min	
10	Engineering mathematics-2: Differential Equations, Complex Analysis, Numerical Methods.	17	25	45 min	
11	General Aptitude-1: Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.	17	25	45 min	
12	General Aptitude-2: Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.	17	25	45 min	
13	Analog Circuits-3: Operational amplifiers: Simple op-amp circuits, active filters. Sinusoidal oscillators: criterion for oscillation, single-transistor and op-amp configurations. Function generators, wave-shaping circuits and 555 timers. Voltage reference circuits; Power supplies: ripple removal and regulation.	17	25	45 min	Activated
14	Microprocessors: Semiconductor memories: ROM, SRAM, DRAM; 8-bit microprocessor (8085): architecture, programming, memory and I/O interfacing.	17	25	45 min	
15	Digital Circuits-1: Number systems; Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates and their static CMOS implementations, arithmetic circuits, code converters, multiplexers, decoders.	17	25	45 min	
16	Digital Circuits-2: Programmable logic devices. Sequential circuits: latches and flip-flops, counters, shift-registers and finite state machines. Data converters: sample and hold circuits, ADCs and DACs.	17	25	45 min	
17	Signals and Systems-1: Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem and applications. Continuous LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structures, frequency response, group delay, phase delay.	17	25	45 min	
18	Signals and Systems-2: Discrete-time signals: discrete-time Fourier transform (DTFT), DFT, FFT, Z-transform, interpolation of discrete-time signals. Discrete LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structures, digital filter design techniques.	17	25	45 min	
19	Communications-1: Analog communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, superheterodyne receivers, circuits for analog communications.	17	25	45 min	
20	Communications-2: Random processes: autocorrelation and power spectral density, properties of white noise, filtering of random signals through LTI systems. Information theory: entropy, mutual information and channel capacity theorem.	17	25	45 min	
21	Communications-3: Digital communications: PCM, DPCM, digital modulation schemes, amplitude, phase and frequency shift keying (ASK, PSK, FSK), QAM, MAP and ML decoding, matched filter receiver, calculation of bandwidth, SNR and BER for digital modulation; Fundamentals of error correction, Hamming codes; Timing and frequency synchronization, inter-symbol interference and its mitigation; Basics of TDMA, FDMA and CDMA.	17	25	45 min	
22	Electromagnetics-1: Electrostatics; Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting vector.	17	25	45 min	
23	Electromagnetics-2: Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth. Waveguides: modes, boundary conditions, cut-off frequencies, dispersion relations.	17	25	45 min	
24	Electromagnetics-3: Transmission lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart. Antennas: antenna types, radiation pattern, gain and directivity, return loss, antenna arrays. Basics of radar; Light propagation in optical fibers.	17	25	45 min	

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25	Networks	33	50	90 min	Activated
26	Control Systems	33	50	90 min	
27	Electronic Devices	33	50	90 min	
28	Analog Circuits	33	50	90 min	
29	Engineering Mathematics	33	50	90 min	
30	General Aptitude	33	50	90 min	
31	Signals & Systems	33	50	90 min	Activated
32	Analog Communication Systems	33	50	90 min	
33	Digital Communication Systems	33	50	90 min	
34	Digital Circuits	33	50	90 min	
35	Electromagnetics	33	50	90 min	
36	Microprocessors	33	50	90 min	
Multiple Subject Tests					
37	Networks + Control Systems	33	50	90 min	Activated
38	Electronic Devices + Analog Circuits	33	50	90 min	
39	Digital Circuits + Microprocessors	33	50	90 min	
40	Communications	33	50	90 min	
41	Electromagnetics + Signals & Systems	33	50	90 min	
42	Engineering Mathematics + General Aptitude	33	50	90 min	
Full Syllabus Tests					
43	Full Syllabus Test-1 (Basic Level)	65	100	180 min	Activated
44	Full Syllabus Test-2 (Basic Level)	65	100	180 min	
45	Full Syllabus Test-3 (Basic Level)	65	100	180 min	
46	Full Syllabus Test-4 (Basic Level)	65	100	180 min	
47	Full Syllabus Test-5 (Advance Level)	65	100	180 min	Activated
48	Full Syllabus Test-6 (Advance Level)	65	100	180 min	
49	Full Syllabus Test-7 (Advance Level)	65	100	180 min	
50	Full Syllabus Test-8 (Advance Level)	65	100	180 min	
Mock Tests					
51	GATE Mock Test 1	65	100	180 min	Activated
52	GATE Mock Test 2	65	100	180 min	
53	GATE Mock Test 3	65	100	180 min	
54	GATE Mock Test 4	65	100	180 min	